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## NOTICE OF ALLOWANCE AND FEE(S) DUE

23373 7590 04/16/2009

SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

CHANG, SUNRAY

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 04/16/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,460	02/07/2006	Satoshi Aoki	Q91816	9148

TITLE OF INVENTION: CONTROL SYSTEM UTILIZING SERIAL COMMUNICATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	07/16/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23373 7590 04/16/2009

SUGHRIUE MION, PLLC  
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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,460	02/07/2006	Satoshi Aoki	Q91816	9148

TITLE OF INVENTION: CONTROL SYSTEM UTILIZING SERIAL COMMUNICATION

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	07/16/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHANG, SUNRAY	2121	700-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

"Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

## 3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

## 4a. The following fee(s) are submitted:

## 4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- Issue Fee
- Publication Fee (No small entity discount permitted)
- Advance Order - # of Copies \_\_\_\_\_

- A check is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

## 5. Change in Entity Status (from status indicated above)

## 5b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

- b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/567,460	02/07/2006	Satoshi Aoki	Q91816	9148
23373	7590	04/16/2009	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				CHANG, SUNRAY
ART UNIT		PAPER NUMBER		
		2121		
DATE MAILED: 04/16/2009				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 531 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 531 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b> 10/567,460	<b>Applicant(s)</b> AOKI ET AL.
	<b>Examiner</b> Sunray R. Chang	<b>Art Unit</b> 2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to December 19<sup>th</sup>, 2008.

2.  The allowed claim(s) is/are 8-25.

3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All    b)  Some\*    c)  None    of the:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.

(a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached  
1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.

(b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of  
Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)

5.  Notice of Informal Patent Application

2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)

6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.

3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_.

7.  Examiner's Amendment/Comment

4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

8.  Examiner's Statement of Reasons for Allowance

9.  Other \_\_\_\_\_.

/Ronald D Hartman Jr./  
Examiner, Art Unit 2121

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***Examiner's Detailed Office Action***

1. Claims 8 – 25 are allowed.

***Examiner's Amendment***

2. On Friday, April 10<sup>th</sup>, 2009, applicant's representative i.e., Tylor Johnson, authorized examiner to amend the following claims by way of Examiner's Amendment responsive to the examiner's requirements to overcome forth objections and rejections in prior office action.

**Regarding claim 8.**

Claim 8. (Currently Amended) A control system utilizing serial-data communication, in which the serial-data communication between a host control apparatus and at least one client control apparatus is performed, the control system comprising: a first processing unit configured in the host control apparatus to embed emergency-stop data in a serial-data communication frame when a malfunction occurs inside the host control apparatus, or when an emergency-stop signal is inputted to the host control apparatus, to embed predetermined frame-error check data in the serial-data communication frame each time the serial-data communication frame is generated, and to output the frame to the client control apparatus; an extracting unit configured in the client control apparatus to extract the emergency-stop data and the frame-error check data from the frame that is transmitted from the host control apparatus to the client control apparatus; and a second processing unit configured in the client control apparatus to determine whether or not the frame has been generated normally in the host control apparatus by checking the frame-error check data extracted by the extracting unit, to output to an apparatus to be controlled the emergency-stop data when the emergency-stop data is embedded in the serial-data communication frame, and the frame is generated normally in the host control apparatus, to block output of the emergency-stop data to the apparatus to be controlled when the emergency-stop data is embedded in the serial-data communication frame, and the frame is not generated normally in the host control apparatus, and to generate a signal for outputting output to the apparatus to be controlled the emergency-stop data when condition in which the frame is not generated normally in the host control apparatus is continued for a duration corresponding to a plurality of frames.

**Regarding claim 10,**

Claim 10. (Currently Amended) A control system utilizing serial-data communication, in which the serial-data communication between a host control apparatus and a plurality of client control apparatuses, or among the plurality of client control apparatuses, is performed, the control system comprising: a first processing unit configured in the client control apparatus to embed emergency-stop data in a serial-data communication frame to be outputted by the client control apparatus when a malfunction occurs inside of the client control apparatus, ~~or~~ when an emergency-stop signal is inputted to the client control apparatus, to embed predetermined frame-error check data in the serial-data communication frame to be outputted by the client control apparatus each time the serial-data communication frame is generated, and to output the frame to the host control apparatus and/or the other client control apparatus; an extracting unit configured in the client control apparatus to extract the emergency-stop data and the frame-error check data from the frame that is transmitted from the host control apparatus and /or the other client control apparatus; and a second processing unit configured in the client control apparatus to determine whether or not the frame has been generated normally in the host control apparatus and/or the other client control apparatus by checking the frame-error check data extracted by the extracting unit, to output to an apparatus to be controlled the emergency-stop data when the emergency-stop data is embedded in the serial-data communication frame and the frame is generated normally in the host control apparatus and/or the other client control apparatus, to block output of the emergency-stop data to the apparatus to be controlled when the emergency-stop data is embedded in the serial-data communication frame and the frame is not generated normally in the host control apparatus and/or the other client control apparatus, and to generate a signal for outputting output to the apparatus to be controlled the emergency-stop data when condition in which the frame is not generated normally in the host control apparatus and/or the other client control apparatus is continued for a duration corresponding to a plurality of frames.

## REASON FOR ALLOWANCE

The following is an Examiner's statement for reason for allowance:

3. Claims 8 – 25 are considered allowable since when reading the claims in light of the specification, as per MPEP 2111.01, none of the prior art of record teach or render obvious applicant's claimed invention. In particular, as pointed out below, the art lacks certain features and the combination as specified in the respective claim(s).

4. The features recited in claim 8, “a control system … a first processing unit configured in the client control apparatus to embed emergency-stop data in a serial-data communication frame to be outputted by the client control apparatus when a malfunction occurs inside of the client control apparatus, when an emergency-stop signal is inputted to the client control apparatus, to embed predetermined frame-error check data in the serial-data communication frame to be outputted by the client control apparatus each time the serial-data communication frame is generated, and to output the frame to the host control apparatus and/or the other client control apparatus … when the emergency-stop data is embedded in the serial-data communication frame and the frame is generated normally in the host control apparatus and/or the other client control apparatus, to block output of the emergency-stop data to the apparatus to be controlled when the emergency-stop data is embedded in the serial-data communication frame and the frame is not generated normally in the host control apparatus and/or the other client control apparatus, and to generate a signal for outputting to the apparatus to be controlled the emergency-stop data when condition in which the frame is not generated normally in the host control apparatus and/or the other client control apparatus is continued for a duration corresponding to a plurality of frames”.

5. The features recited in claim 9, “a control system … a first processing unit configured in the client control apparatus to embed emergency-stop data in a serial-data communication frame to be outputted by the client control apparatus when a malfunction occurs inside the client control apparatus, to embed predetermined frame-error check data in the serial-data communication frame to be outputted by the client control apparatus each time the serial-data communication frame is generated, and to output the frame to the host control apparatus; … to

determine whether or not the frame has been generated normally in the client control apparatus by checking the frame-error check data extracted by the extracting unit, to determine that the client control apparatus is in order when the emergency-stop data is embedded in the serial-data communication frame and the frame is generated normally in the client control apparatus, and to determine that the client control apparatus is out of order when the emergency-stop data is embedded in the serial-data communication and condition in which the frame is not generated normally in the client control apparatus is continued for a duration corresponding to a plurality of frames.

6. The features recited in claim 10, “a control system … a first processing unit configured in the client control apparatus to embed emergency-stop data in a serial-data communication frame to be outputted by the client control apparatus when a malfunction occurs inside of the client control apparatus, when an emergency-stop signal is inputted to the client control apparatus, to embed predetermined frame-error check data in the serial-data communication frame to be outputted by the client control apparatus each time the serial-data communication frame is generated, and to output the frame to the host control apparatus and/or the other client control apparatus; … to determine whether or not the frame has been generated normally in the host control apparatus and/or the other client control apparatus by checking the frame-error check data extracted by the extracting unit, to output to an apparatus to be controlled the emergency-stop data when the emergency-stop data is embedded in the serial-data communication frame and the frame is generated normally in the host control apparatus and/or the other client control apparatus, to block output of the emergency-stop data to the apparatus to be controlled when the

emergency-stop data is embedded in the serial-data communication frame and the frame is not generated normally in the host control apparatus and/or the other client control apparatus, and to generate a signal for outputting to the apparatus to be controlled the emergency-stop data when condition in which the frame is not generated normally in the host control apparatus and/or the other client control apparatus is continued for a duration corresponding to a plurality of frames",

7. context of the claim(s) as a whole, was not uncovered in the prior art. Moreover, the dependent claims 11 – 25 are allowed as they depend upon an allowable independent claim(s).

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments regarding Statement of Reason for Allowance".

#### Correspondence Information

9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Sunray Chang, who may be reached Monday through Friday, between 6:00 a.m. and 3:00 p.m. EST. or via telephone at (571) 272-3682 or facsimile transmission (571) 273-3682 or email [sunray.chang@uspto.gov](mailto:sunray.chang@uspto.gov).

If you need to send an Official facsimile transmission, please send it to (571) 273-8300.

If attempts to reach the examiner are unsuccessful in the regular office hour, the Examiner's Supervisor, Albert Decady, may be reached at (571) 272-3819.

Art Unit: 2121

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Finally, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Moreover, status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) toll-free @ 1-866-217-9197.

/Ronald D Hartman Jr./  
Primary Examiner, Art Unit 2121

***Sunray Chang***  
Patent Examiner

Tuesday, April 16, 2009